

Practical Combustion for Fired Heaters

DESIGNED FOR

Engineers, operators, maintenance, safety, training, and maintenance personnel as well as engineers and operators involved in the design, operation, and maintenance of fired heaters in various industries. No prior knowledge of combustion or fired heaters is required.

COURSE OVERVIEW

Led by leading experts from John Zink Hamworthy Combustion, Koch Engineered Solutions, and other professionals from the industry, this comprehensive training course covers all aspects of process burners and their impact to heater operation, from introductory theory to advanced diagnostic techniques. The course begins with Process Burner Fundamentals, providing participants with a solid understanding of the essential theory and practical application of process burners in fired heaters. Participants will then apply these basic concepts with the latest and most advanced diagnostics techniques for assessing burner and heater performance. Learners will achieve a good understanding of what causes burner flames to interact and the effect of having burners placed too close to each other and/or too close to the furnace walls or tubes and the impact that has on heater performance.

The course emphasizes safe process burner and heater operation, with time in the classroom learning the basics and hands-on burner operation in a test furnace at our world class test facility. Additionally, the course allows students to experience the science of optimizing reliability and performance in the life cycle of a fired heater. The learning includes practical approaches to performance monitoring, advanced operation, tube inspection, root cause failure analysis, reliability monitoring, risk assessment, and safety.

LOCATION, DATES & PRICE

Tulsa, OK / April 6 - 9, 2026 — \$2,995

Tulsa, OK / September 28 - October 1, 2026 — \$2,995

*** Tuition includes**
all 3 Volumes of the
John Zink Hamworthy
Combustion Handbook.



JZ: PB300

*We've educated thousands of
professionals from all over the world.*

4-Day Course 2.8 CEUs (IACET)

(Continuing Education Units)

Prerequisite:

*PB155 Process Burner Theory
(offered online)*

Dates are subject to change.

**Contact the Koch Engineered
Solutions Institute for more details.**

KESInstitute.com

918.234.1800

TOPICS COVERED

- Day 1**
- Combustion Fundamentals and Safety
 - Burner Fundamentals and Heater Operations
 - Test Procedures
 - Burner Spacing Optimization: Understanding Burner Spacing for Ultra Low-NOx Burners
- Day 2**
- Hands-on Burner Operation
 - Troubleshooting and Maintenance
 - Computational Fluid Dynamics: Predicting and Solving Combustion Operating Problems
 - Air Pollution Emissions: NOx, CO, and Particulate Matter
- Day 3**
- Ethylene Cracking Furnaces: Basics of the Pyrolysis Process Heater and Burner Operation
 - Steam Methane Reforming: Introduction to the Reforming Process
 - Common Tube Damage Mechanisms
 - Screening Assessment for Tube Integrity
- Day 4**
- Practical Applications of Infrared Thermometry
 - Heater Performance Monitoring Checklist
 - Examples of Key Performance Indicators
 - Risk and Root Cause Failure Analysis
 - Performance and Reliability Strategies

Included

Each participant will receive a hardcopy of a color training manual of the course presentation, the JZHC Handbook Volume 1, 2 and 3, and a certificate of completion. Registration includes a continental breakfast and lunch daily and all-day complimentary beverages.

Questions?

Please contact the Koch Engineered Solutions Institute at 918.234.1800.

Disclaimer: This document was prepared for promotional purposes only. Class dates and locations are subject to change without notice. Check the Koch Engineered Solutions Institute website for the most up-to-date information. The Koch Engineered Solutions Institute is not responsible for any costs associated with cancellations. The information provided is neither a guarantee nor a statement of warranty, either expressed or implied.

Payments/Cancellations

Your registration in a class is not guaranteed until payment in full has been received. Payment is due 30 days before the start of a class.

Cancellations received at least 30 calendar days before the start of a class will be 100% refunded. Cancellations less than 30 calendar days before the start of a class will not be refunded. However, students may at their option find their own replacement up to 15 business days prior to the start of the course. Students who fail to show up for a class will not receive a refund. If a student cannot attend their scheduled course, they may transfer their registration to another course of their choosing with no penalty incurred. This transfer must occur 15 business days prior to the start of a course.

We reserve the right to deny admission for any reason permitted by law including, without limitation, the admission of employees of companies that. Koch Engineered Solutions deems to be a competitor. All decisions regarding admissions are made without regard to color, race, religion, gender, sexual orientation, national origin, ethnicity, age, disability, pregnancy, veteran status, or other legally protected factors. We reserve the right to cancel the registration of a student at our sole discretion. In such event, we will refund the course tuition.

Our company considers the health and safety of all our attendees, guests, and employees of paramount importance. All events shall be held in accordance with all company and venue policies and procedures as well as all local laws, regulations, and guidance in relation to COVID-19. It is the responsibility of each attendee to abide by all such policies, procedure, laws, regulations, and guidance while attending the event. If an attendee is unable to attend the event and must cancel or postpone their reservation in order to comply with the aforementioned, the company shall endeavor to transfer the reservation to the next available event.

Policy Statement

It is the policy of the Koch Engineered Solutions Institute that 100% of the tuition must be paid by the student's employer or an affiliate of the employer. Payment for classes may be made only once the students have been approved for admission.